THE BOSTON
MEDICAL AND SURGICAL JOURNAL.

VOL. XCII. — THURSDAY, FEBRUARY 4, 1875. — NO. 5.

MANUAL DILATATION OF THE OS UTERI AS A MEANS OF INDUCING PREMATURE LABOR.

BY A. D. SINCLAIR, M. D. (HARV.), L. M. (EDIN.),

Fellow of the Obstetrical Societies of Boston and London, etc.

From time to time various means have been resorted to, in order to sufficiently dilate the uterine orifice to admit the hand into the interior of the uterus. Chief among these have been sponge tents and what are known as Keiller's or Barnes's dilators. To the use of these instruments obstetric medicine has been and will be greatly indebted, particularly in the operation of inducing premature labor. It is evident, however, that the hand of the obstetrician, as a uterine dilator, may be made a more efficient means, and have claims upon our attention.

1. The hand is always available. 2. It can be easily governed. 3. Wherever a sponge tent or rubber bag can be inserted, the finger may be introduced. 4. The hand and the brain of the operator being in constant sympathy, giving him the precise idea of the condition of the parts, he is enabled to regulate the force necessary to effect dilatation. 5. Artificial dilators frequently require manual aid to keep them in place. 6. As the skilled surgeon, in the process of certain operations, finds greater safety in the use of the fingers than the knife, so may the obstetrician substitute his hand for artificial means as often as practicable.

Delivery was effected by the hand in the following cases: One of convulsions at the seventh month, three of convulsions at the eighth month, two of placenta prævia at the eighth month, one of uterine hæmorrhage at the fifth month, one of accidental hæmorrhage in the ninth month, and one of persistent vomiting at the seventh month.

Case I. On the 18th of January, 1870, was called to see a primipara, aged twenty-three years, who was seven months advanced in pregnancy, and who had had frequent and severe convulsions for ten hours; the severity of the seizures had been alleviated by chloroform, but the attacks had returned with unabated violence on discontinuing the anæsthetic. She had passed no urine for twenty-four hours, and that obtained from the bladder was very albuminous. The lower extremities were much swollen. The case was regarded as one of extreme danger. The induction of premature labor was advised, as it offered the greatest

safety to the patient; the hand was proposed as the instrument to effect delivery. The patient was again chloroformed. The hand being oiled, a finger was passed into the orifice of the vagina, which was small; but after a short time it yielded to gentle pressure sufficiently to admit the whole hand. In the same manner the entrance into the os uteri was effected. Although the opening was at first so small as not to admit the point of the index finger, the exertion of gentle force effected an entrance. Waited until the cervix relaxed, then passed another finger alongside the first, paused until further relaxation ensued, then insinuated a third finger, and so on until the five fingers, wedge-shaped, were all engaged within the cervical cavity. By gentle force, patiently sustained, the whole hand could now be passed into the cavity of the uterus, but it was allowed to remain in the cervical cavity until complete relaxation had taken place. This important point should be borne in mind, for on it greatly depends the success of the operation. The child was turned and extracted, and is now living. An hour and a half was occupied in the process, with no evidence that the soft parts had suffered contusion. The only uterine contraction observed was while the hand was in the womb; and deep anæsthesia was required to overcome it. After delivery the uterus contracted well, and there was no unusual hæmorrhage. Convulsions recurred occasionally, for nearly twenty-four hours; they were mitigated by chloroform. The patient made a good recovery, and has since had normal labors.

Case II. On July 26, 1870, saw, in consultation, Mrs. ——, aged twenty-five years. She was eight months advanced in her first pregnancy. She had been healthy till after conception, when she had more or less headache with gastric disturbance. Her feet began to swell as pregnancy advanced, the œdema being confined to the lower extremities till after the sixth month, when it became general. The urine was scanty and albuminous. Convulsions came on early in the day and continued at short intervals; they were moderated by ether. She was semi-conscious. Immediate delivery by manual dilatation of the os uteri was advised and carried out as in Case I. The cervix was very rigid. The distance between the os externum and the os internum was surprisingly long. An occasional feeble contraction of the uterus was perceived during the delivery, which occupied four hours. The fœtal head presented; version was performed and a still-born child extracted. The uterus contracted normally. After a few hours the patient began to recover consciousness; she had no more convulsions, and appeared to be doing well for seven or eight days; at the end of that time she had profuse hæmorrhage from the vagina, which, in the absence of medical aid for some time after its onset, proved fatal.

Case III. In August, 1872, saw Mrs. ——, a multipara, who had been suddenly seized with convulsions, an hour or two previous, at the

beginning of the eighth month of pregnancy. Ether had already been administered by a physician in attendance. From the albuminous state of the urine and the frequent recurrence of the convulsions, it was agreed that immediate delivery was the safest practice. Under anæsthesia, the hand was used as a dilator of the os uteri, which after the period of an hour and a quarter became wide enough to admit the hand into the interior of the womb. The fœtus, whose head presented, was turned and extracted alive. At times, during the process of dilatation, the uterus contracted feebly, and after delivery free hæmorrhage came on, which was arrested with difficulty. She made a good recovery and has since given birth.

Case IV. On December 25, 1874, was called to advise on the case of Mrs. ——, a young primipara, eight months advanced in pregnancy. Her health had always been excellent until some time after conception. She had had general œdema for several weeks, with headache later on. One day about noon, she was suddenly seized with convulsions, which recurred at short intervals; she was chloroformed. The urine was almost suppressed; the small quantity taken from the bladder was found to be almost solid with albumen. Three or four hours later, premature delivery was suggested, as the case wore a threatening aspect. This measure, however, was deferred, in the hope that time and other remedies might obviate this last resort, but the convulsions returned with unabated violence and frequency until late in the forenoon of the next day, when delivery was effected by the hand, in a little over an hour. The child was turned and extracted still-born. The uterus contracted naturally. There were no further convulsions and the patient recovered partial consciousness, but soon relapsed into coma and died in nine hours after delivery.

Case V. On June 29, 1874, was called to see Mrs. ——, aged forty, eight months advanced in her second pregnancy, fourteen years after the birth of her first child. From the seventh to the eighth month, at intervals of a few days, she had had uterine hæmorrhage; but during the eight or ten days before she was seen, she had large effusions, daily, followed by pallor and exhaustion. For this urgent state of things her physician asked in succession two other physicians, who in turn advised the tampon and rest in bed. This course was faithfully pursued without relief. A third physician was then asked in council, who invited the fourth. Ether was administered. After removing an immense plug of rags and clotted blood from an enormously distended vagina, found the uterine orifice firmly closed. By gentle, steady pressure, the finger was readily insinuated into the cavity of the cervix, which in a few minutes relaxed so as to admit another finger, and so on, until the whole hand was engaged. Observing the precaution given in Case I., the hand was not passed at once from the cervical into the

uterine cavity. Very soon, however, the parts had so relaxed as to warrant the seizure of a fœtal foot. The child was turned and delivery effected in twenty minutes. The placenta was found covering fully three fourths of the os internum. The uterus contracted well, and as soon as the patient was able to swallow, ergot was given. Mother and child did well.

Case VI. Many years ago, as well as can be recollected (having lost the notes), was called to see a multipara with two physicians who had charge. As there had been much flowing, the apprehension that the case would prove fatal warranted immediate delivery. The cervix uteri was very rigid; nearly two hours was occupied in passing the hand into the uterus, when the child was turned and extracted, lifeless. Found that the placenta covered the whole os internum. The patient made a slow but complete recovery.

Case VII. Mrs. ——, aged thirty-four, advanced five months in her third pregnancy, had hæmorrhage from the vagina, more or less, for over two months, but for the past fortnight nearly constant, and profuse. It was ascertained that several futile attempts had been made to procure abortion, between the second and third months. Taking into consideration the great loss of blood, and the mental condition of the patient consequent on her wrong-doing, was led to the decision, in council with her physician, at once to empty the uterus of its contents. On October 11, 1874, the operation was performed, under ether; the hand was used as the dilator of the cervix, which was exceedingly rigid. Three hours of patient effort was required to effect an entrance, when a fœtus of five months was brought away. The placenta was found everywhere adherent, except at the lower margin, where the finger could be passed beneath it. It was removed by pieces after a good deal of trouble. The patient did well.

Case VIII. On September 4, 1874, was called to see Mrs. ——, a multipara, who had been seized a few hours previous with hæmorrhage from the uterus. She was in the ninth month of pregnancy. It was decided in consultation with her attending physician that labor should be effected at once, as the hæmorrhage continued and labor pains were wanting. The os uteri was soft and dilatable; the hand was easily passed into the uterus, a fœtal foot seized, the child turned and extracted. The uterus contracted naturally. The process occupied about fifteen minutes. The child appeared still-born, but after a while was resuscitated, and lived about twenty-four hours. Notwithstanding her great loss of blood, the patient made a good recovery.

Case IX. Mrs. ——, aged thirty-six, a multipara who had suffered much from vomiting throughout her former pregnancies, had advanced to the seventh month of utero-gestation. The vomiting had been more constant in this pregnancy than in any former one, causing great exhaus-

tion. Albumen had not appeared in the urine. Various remedies were tried without relief, and she daily became more prostrate, restless, and wakeful. The pulse from 140 rose to 160 on the 9th of December, 1870, with a sunken condition of the eyes and ashy hue of the skin. She had the appearance of one in articulo mortis. This truly alarming state of things forced the determination to relieve the uterus of its contents as the only means of safety left to the patient. Without ether, the hand was passed into the uterus and a male fœtus, whose feet presented, was extracted; then a second male child, which presented by the head, was turned and taken away. There was complete absence of uterine contraction during the process of delivery, which took about five minutes. Ergot was given and the uterus contracted well. One of the twins lived twenty minutes, the other eighteen months. The mother continued to vomit during the next thirty-six hours, and recovery seemed doubtful; but as food was gradually retained in the stomach, after a few weeks she was able to join the family.

All of these cases, except the last, were seen in consultation.

The subject of manual dilatation has been discussed at the meetings of the Obstetrical Society, at various times, for the past four or five years. Several members have adopted the practice under circumstances similar to those detailed in the foregoing cases.

THE USE OF THE MEMBRANA TYMPANI AS A PHONAUTOGRAPH.

BY CLARENCE J. BLAKE, M. D. (HARV.).

THE value of the membrana tympani, used as a phonautographic membrane in obtaining tracings of sonorous vibrations, has been amply illustrated by a series of experiments made during the past year, the results of some of which were presented at a recent meeting of the Boston Society for the Advancement of Medical Science. The membranes employed have been preferably those of the human subject, and the method of preparation and of adaptation to the purpose has been as follows.

A specimen as nearly normal as possible having been obtained, and the temporal bone removed and cleaned by removal of the soft parts, the lining of the external auditory canal is cut away to a line close to the membrana tympani. The thin plate of bone forming the roof of the tympanic cavity is then cut through by means of a bone chisel, great care being necessary to avoid disturbing the ossicula. The opening should be sufficiently large to permit a clear view of the cavity from the antrum mastoideum posteriorly to the opening of the Eustachian

tube anteriorly, uncovering the malleus and incus and extending inward so far as to reveal the inner tympanic wall and the articulation of the incus and stapes. This latter articulation is then divided by means of a narrow-bladed knife or paracentesis needle, and the musculus tensor tympani also cut across close to the insertion of its tendon on the malleus; or, if it be desirable to retain this muscle for experiment, its belly is dissected out from the bony canal in which it is lodged. A section is then made from behind forward through the tympanic cavity, separating the petrous from the mastoid and squamous portions of the temporal bone, a hair saw being used for this purpose and carried between the incus and stapes through the divided articulation. At this point the saw should be inclined inward toward the stapes, and the descending process of the incus pressed gently outward by means of a spatula, in order to avoid any movement of the incus, a touch of the saw upon the long process of the incus being often sufficient to rupture the capsular ligament of the articulation of the incus and malleus, and so far derange the relations of the ossicula as to render the specimen unfit for experiment.

The petrous portion of the temporal bone, with the stapes, having been removed by this section, the inner surface of the membrana tympani is freely exposed, with the malleus and incus in position. The outer portion of the floor of the tympanum is then removed with a file or the Rüdinger knife, and the specimen cleansed from the small pieces of bone and the bone dust which would otherwise load the membrana tympani and interfere with its vibration, or obstruct the movements of the ossicula. As the specimen becomes dry, it is moistened with a mixture of equal parts of glycerine and water.

To obtain tracings of the sound-waves conveyed to the membrana tympani, it is necessary that the specimen be firmly fixed, that a style should be attached to the membrane, and that a plate upon which the movements of the style are to be traced should be carried smoothly and at a uniform speed in a direction at a right angle to the direction of the excursion of the style. For this purpose, the specimen is attached, by means of thumb-screws passing through holes bored in the squamous portion of the bone, or by means of a clamp, to a perpendicular bar sliding in an upright and moved by a ratchet-wheel. To the upright is affixed, horizontally, a metallic stage six inches in length, upon which slides a metal carriage carrying a glass plate. The carriage is drawn by a weight on the end of a cord passing over a wheel at the end of the stage and attached to the carriage. A bell-shaped mouth-piece, or a conversation tube, is inserted in the external auditory meatus and luted in position.

A musical tone sounded in the bell or mouth of the tube, being conveyed to the membrana tympani, will set it in corresponding vibration.

These vibrations may be observed by means of a light ray thrown upon small specula made of foil, attached to the malleus, incus, or to different portions of the membrana tympani, or may be recorded by a style tracing upon the smoked glass plate resting upon the carriage. The character of the style is a matter of considerable importance; it should be very light and firm, and sufficiently elastic to bend easily when its point is pressed upon the glass plate, and should be so stiff as to have but little vibration of its own. After a series of unsuccessful or but partially successful attempts made with styles of horse-hair, bristles, cane fibres, split bamboo, and so forth, the best style for the purpose was obtained by splitting long straws, scraping the inner cortical substance away, and separating single fibres; these could be obtained of any desired length, and so far have answered all that has been required of them.

A style of this sort is fastened to the descending process of the malleus or incus by means of glue or pitch, in a line with the long axis of the process and extending downward for a distance of from half an inch to an inch, according to the size of the specimen and weight of the style, and inclined slightly toward the direction in which the carriage moves. The plate of glass, smoked evenly over an ordinary oil lamp, and attached to the carriage by metallic springs, is placed in position under the style, the point of which is brought lightly in contact with the surface of the plate by adjustment with the ratchet-wheel.

The membrana tympani being set in vibration and the carriage, drawn by its weight, moving at a right angle to the excursion of the style, a wave line corresponding to the character and pitch of the musical tone sounded into the ear is traced upon the smoked glass. For preservation the smoked glass is then floated with mastic varnish and allowed to dry and harden, a process occupying from two to three days.

In its excursions the end of the style moves through the segment of a circle the radius of which is equal to the length of the style from its point of attachment at the centre of the membrana tympani. Where the excursion is a large one, therefore, as in sound-waves of considerable amplitude, or when the membrana tympani is set in vibration under pressure from without inward, thereby increasing the vibration of the end of the style, the tracing being made upon a plane surface, the extremes of the excursion, corresponding to the greatest height and depth of the waves, are indistinctly traced. The use of a glass having a curve corresponding to a circle of which the length of the style is the radius, as suggested by Prof. Graham Bell, obviates this difficulty.

The lamp-black is then floated from the glass by pouring collodion upon it and allowing it to dry. When dry, the collodion film may be removed with the tracing and varnished as in the preceding experiment, and the same glass used repeatedly.

The advantages in using the membrana tympani for the purpose of obtaining phonautograms are evident upon comparison with the various mechanical devices for accomplishing the same purpose, and a consideration of its structure gives sufficient evidence of its adaptability as an instrument for the purpose of recording the vibrations of a wide range of musical tones of varying character.

The observations made by Professor Bell and myself, to be published later, have been directed to the repetition of the experiments of Donders and others, and particularly to the determination of the curves corresponding to the vowel and consonant sounds; in this connection also, the membrana tympani has been used as a logograph with very gratifying results. This method is further applicable to a determination of some of the acoustic properties of the membrana tympani itself, and in this direction has opened what has already proved to be a very interesting field for experiment. With so delicate a mechanism, and upon so small a scale, many of the tracings are of necessity microscopic, and as such are best exhibited by means of the magic lantern.

NOTE ON THE ACTION OF LOBELINA ON THE CIRCULATION.

BY J. OTT, M. D., OF EASTON, PA.

THE lobelina was prepared by Messrs. Hance Bros. and White, of Philadelphia, after the method of Proctor. It was a dark, oily liquid, of considerable consistency, tobacco-like taste and odor, with a specific gravity heavier than that of water. The strength of the solution used was four fifths of a drop of lobelina to one cubic centimetre, with a few drops of acetic acid, care being taken that the solution was absolutely neutral. The color of the solution was a rich, bright yellow, the resin adhering to the sides of the bottle and the stirring-rod. As the quantity was extremely small, only one toxic experiment was made, which is as follows: A frog, at 11.45 A. M., received two fifths of a drop of lobelina. At 11.49 A. M., sensibility was diminished; the frog could be easily taken up in the hand. At 11.51 A. M., respirations diminishing in number; motor power of anterior extremities less. At 11.53 A. M., sensibility considerably diminished; pupil contracting. At 11.57 A. M., loss of motor power in the posterior extremities; frog hops when pinched. At 12 M., unable to make coördinate movements; respiratory action now and then; seems dozing. At 12.13 P. M., heart laid bare; it beats sixty per minute; feeble reflex excitability, as evidenced by slight twitches of the extremities on pinching; no respiration. At 4 P. M., reflex action about the same as at 1 P. M.; pupil contracted. Next morning, frog had completely recovered.

Circulation. — The number of my experiments was six, and all were made on rabbits. The pulse and pressure were registered by Ludwig's manometer on a kymographion presenting a continuous roll of paper. The time was noted by an electro-magnetic apparatus, the current being broken by a pendulum beating seconds. The time of the injection was also recorded, as well as the period of the irritation of the nerves, by a special contrivance. The carotid artery was used for observation, and into the left jugular or one of its branches had been bound a canula, into which the nozzle of a syringe accurately fitted, and through which the poison was injected towards the heart. Artificial respiration was kept up by an apparatus on the principle of Sprengel's blower.

Experiment I. — Rabbit. The pulse and pressure are always given for thirty seconds; pressure in millimetres of mercury.

Time.	Pulse.	Pressure.	
	129	110	
	Lobelina, four fifths of a drop.		
A. M. 11 20	65	64–130	Struggling.
11 21	142	120	
11 21 30	114	150	
11 22	110	140	
11 27	114	120	
11 31 15	114	120	
11 32 45	Vagi cut.		
11 34 9	167	152	
	Lobelina, four fifths of a drop.		
11 34 39	182	156	Struggling.
11 35 30	125	80	
11 36	109	46	

As the injection of the poison caused struggling, which would prevent an accurate study of the action on the circulation, I used curare to paralyze the motor nerves.

Experiment II. — Rabbit curarized.

Time.	Pulse.	Pressure.
	110	110
	Lobelina, four fifths of a drop.	
P. M. 1 50	74	100–110
1 50 30	103	158
1 51	70	130
1 51 30	55	100
1 52	81	94
1 54	111	104
	Vagus irritated.	
1 56 30	97	96
2 2	144	118
2 3	Vagi cut.	
2 18 40	166	116
	Lobelina, four fifths of a drop.	
2 19 15	150	110–138
2 19 45		126
2 20 15		120

As section of the pneumogastrics removes all inhibitory action of central character, and as the action of lobelina on the pressure is the same as before the section, I infer that the poison does not act on the central inhibitory apparatus. To set aside the peripheral inhibition of the vagi, the poisons atropine and nicotine are used; the latter causing more complete and extensive paralysis of the inhibitory ganglia seated in the heart than the former.

Experiment III. — Rabbit, curarized; nicotine; vagi completely paralyzed, as tested by strong currents.

Time.	Pulse.	Pressure.
	126	40
	Lobelina, four fifths of a drop.	
P. M. 2 15	106	44-34
2 15 30	92	30
2 16	90	26
2 17 30	121	25
2 21	130	27
2 21 30	144	30

Experiment IV. — Rabbit; vagi paralyzed by atropia; curarized.

Time.	Pulse.	Pressure.
	125	82
	Lobelina, four fifths of a drop.	
A. M. 10 50	91	80-190
10 50 30	77	120
10 51	90	104
10 53	96	100
10 57 30	88	110
11 9	115	96
11 10 30	116	100
11 13 30	Nicotine injected.	
11 14	149	140
11 26 30	126	106
	Lobelina, four fifths of a drop.	
11 27 9	88	84- 96
11 27 39	90	96
11 28 9	91	96
11 29 30	105	100
11 30 30	108	100
11 37	107	104
11 44 40	104	106

It is seen that, after the paralysis by atropine, the pressure rises as before, but that after the exhibition of nicotine no rise of any importance takes place. To study the action of lobelina on the heart and its contained ganglia, it is necessary to divide the pneumogastrics, sympathetics, and depressors of Ludwig in the neck, and to sever the cord (which contains the accelerator and vaso-motor fibres) between the atlas and the occiput.

Experiment V. — Rabbit, curarized; all cardiac nerves in the neck are cut; cord cut between the occiput and atlas, verified by post-mortem; bleeding staunched by bovista.

Time.	Pulse.	Pressure.
	130	25
	Lobelina, four fifths of a drop.	
A. M. 10 40	106	30
10 40 30	91	40
10 45 30	124	30
10 46	140	32

The unimportant rise of pressure when lobelina is acting on a nicotinized heart, the statement of Rosenthal [1] that nicotine finally paralyzes the vessels, and the nearly double rise of pressure when the action of the vaso-motor centre is removed, caused a suspicion that there was an action on the peripheral vaso-motor apparatus. Happily, there is possessed in nitrite of amyl a poison which has the power to paralyze the peripheral action of the vaso-motor system, as has been proved by Brunton [2] and H. C. Wood.[3] In accordance with this fact, the following experiment was made.

Experiment VI. — Rabbit, curarized; nitrite of amyl administered by means of a flask whose stopper was so arranged that by turning it a quarter of a circle, one could at pleasure admit or exclude the amyl from the inhaled air.

Time.	Pulse.	Pressure.
	159	28 [4]
	Lobelina, four fifths of a drop.	
A. M. 10 30	147	28
10 30 30	154	26
10 31 30	159	32 [5]
10 34	153	30
10 30 30	167	32 [6]
10 47		
	Lobelina, four fifths of a drop.	
10 48 49	160	28
10 49 19	156	30
10 49 49	157	28
10 50 49	144	24
10 53 19	162	32
11 30	136	46

As was anticipated, the rise of pressure was unimportant.

Confirmatory of the above action of lobelina is that of the aqueous

[1] Hermann, Lehrbuch der experimentellen Toxicologie.

[2] Ludwig's Arbeiten, 1869. [3] American Journal of the Medical Sciences, cxxiii.

[4] One minute and twenty-nine seconds after end of inhalation of amyl.

[5] Amyl inhaled for thirty seconds. [6] Amyl inhaled for nineteen seconds.

extract of lobelia, prepared by Messrs. Tilden & Co., one grain of which equaled five and a half grains of lobelia. These experiments were made in Philadelphia, last summer.

Experiment VII. — Cat; crural artery; Fick's manometer; respiration recorded by Marey's polygraph; poison injected through jugular toward the heart.

Time.	Pulse.	Pressure.	Respiration.
	75	123	
	Aqueous extract of lobelia, .04 gramme.		
A. M. 9 25	73	133	36
9 25 30	83	133	48
9 26	85	136	33
9 27 30	90	139	21
9 34	92	130	17
9 42	112	86	12
9 43	107	116	14
9 56	105	130	29

Experiment VIII. — Dog; vagi and sympathetics cut; crural artery; Fick's manometer; artificial respiration.

Time.	Pulse.	Pressure.	
	91	110	
	Aqueous extract of lobelia, sixteen grammes.		
A. M. 10 25 30	89	103	
10 26 30	114	113	
10 27	124	103	Struggling.
10 28	114	70	
10 28 30	114	70	
10 29	101	63	
	Vago-sympatheticus irritated.		
10 30	95	50	
10 48	92	90	
	Aqueous extract of lobelia, sixteen grammes.		
10 48 30	92	100	Struggling.
10 49	123	50	
10 57	93	86 [1]	

Reasoning from the above data, the inference would be that lobelina in small doses increases the blood pressure by acting as an excitant on the peripheral vaso-motor system. The pulse seems temporarily reduced and then increased; the necessarily limited number of our experiments precludes saying more about it. I will state here that I have found lobelia to be mainly a respiratory poison, and that in the cat it greatly reduces the temperature. The above experiments on lobelina were made in Professor Bowditch's Physiological Laboratory at Harvard Medical School; to him I am indebted for opportunities of study and many highly important suggestions in the investigation.

[1] The inhibitory power of vagus still remains.

RECENT PROGRESS IN THE TREATMENT OF CHILDREN'S DISEASES.

BY D. H. HAYDEN, M. D.

INCONTINENCE OF URINE.

In the meeting of the Dublin Obstetrical Society held June 13, 1874, a paper entitled "Remarks on Incontinence of Urine in Children" was read by Henry Kennedy, A. B., M. B., Vice-President College of Physicians, and Physician to the Whitworth Hospital, Drumcondra. From a report in the *Dublin Journal of Medical Science* for July, 1874, the following abstract is taken: —

Before speaking of the immediate subject, reference is made to the marked differences, "contrasts," which exist among infants at and after birth, manifested not only in what might be called externals, but in the internal functions as well; for instance, the susceptibility of the stomach and bowels, and the ease or difficulty with which the act of swallowing is performed. So, too, some are essentially awkward in all their ways and actions, and no education will cure them; some are awkward in their powers of speech, and will continue to speak "thick" years after others can speak perfectly. Observation shows that girls speak earlier and more perfectly than boys; and it is well ascertained that stammering is much more common among males than among females. It is among these diversities in the mode of performance of natural functions, which may be either of a temporary or of a more permanent character, that the author would place the distressing affection now in question. What the exact cause is, it would be hard to determine; but it would seem to be a want of nervous influence in the sphincter of the bladder, or probably it might be better expressed by saying that the proper balance of power between the retaining and the expulsive powers is lost for the time. In the great majority of instances the affection is intermitting, or, if not actually intermitting, is at least worse at one period than at another; it is not a peculiarity of a delicate constitution, being as often seen in robust children; in most of those thus affected, however, there is found "a marked mobility of the nervous system." In connection with this infirmity of the bladder it is worth noting how rarely the bowel is implicated; yet this does sometimes occur, intermittingly, as it were; though the author has never seen it to the same degree as occurs with the bladder, nor has he ever been consulted about it. The latter remarks do not refer to what often occurs in the progress of the fevers of children, but to what takes places when the child is, to ll appearances at least, in good health.

The affection requires no description. The child wets the bed once, twice, or even three times during the night. Nor is the infirmity con-

fined to the night, as possibly many suppose. It has been known to occur in the day-time, though cases of this kind are rare. Boys are more frequently affected than girls; but the latter are by no means exempt. The duration of the complaint is most uncertain. In severe cases it has continued till the change from boyhood to manhood took place; and in a very obstinate case in a female, under the author's observation, the infirmity continued up to womanhood, and ceased only when the patient married.

The treatment of this affection may be divided into two kinds: the mechanical and the medical. Amongst the former must be noticed what was suggested by Sir D. Corrigan a few years back, the application of strong collodion to the orifice of the prepuce, thus preventing the escape of the urine for the time. The difficulty lying in the way of this procedure is that the urine would not be retained in the bladder, but would make its way into the prepuce, that is, supposing the orifice to be so glued as to keep it there; and Sir Philip Crampton relates a case in which, this plan having been adopted, the prepuce was literally turned into a bladder, an infirmity from which the sufferer was not free as long as Sir Philip knew him. A more feasible plan with boys is an application of a piece of bougie to the under surface of the penis, keeping it there by means of sticking-plaster. There is great difficulty in the way of carrying out this method of treatment. It has of course to be used at night, and to be taken off in a few hours, and entails close watching. Moreover, it gives rise to some pain. Still the plan is one of which we should not lose sight. The pressure should be at the root of the penis, and it should not be undertaken except under medical supervision. The object is to break the wrong habit of the system; and, if this be done for three or four nights, there is a strong probability that the proper function of the bladder will be restored, and the infirmity cured. It is when other measures have failed that this one should be tried.

Another means which has been proposed for treating this affection, and which would come under the head of mechanical measures, is the position of the patient whilst in bed. It has been said that if he be kept on his side there is not that tendency to empty the bladder which exists in the dorsal decubitus; and this has been explained by supposing that in the latter the urine irritates the trigone of the bladder, and so causes the organ to empty itself. Before adopting this idea, we ought to be sure that the statement is true. To the author it seems very unlikely, and he cites one instance where it was not the case, as the patient, a boy, wet the bed, no matter in what position he lay. Besides, it is hard to understand how any quantity of urine can be in the bladder without coming in contact with the trigone.

The medical treatment of the affection divides itself into general and

special measures. Amongst the former will be placed the regulation of the quantity of fluid to be taken, as well as the time of the day when it is used. There can be no doubt that, if any over-quantity be taken towards evening, it must greatly increase the tendency to the complaint. Of the fluids used, tea has an injurious effect, and should be avoided. A plan which, when it can be carried out, is always of use, is to teach the patient, during the day-time, to retain the urine as long as is possible, although, owing to the age of some of the patients, this measure is not always available.

Amongst the medical means employed for the cure of the affection, blisters must be mentioned. When they succeed, the success is immediate, and the author does not approve of applying them again and again as recommended by some. There can be no doubt that, applied to the sacrum, they have been sometimes successful, and cases will occur where we will be driven to try every resource, and this amongst the rest. Of internal remedies, the tincture of the perchloride of iron has been specially praised; but it has not answered the author's expectations, and he doubts if others have found it more beneficial. Some form of the cold douche, however, is a valuable agent; and if the disease be checked, even for a time, this measure will probably prevent a relapse, which we know is so likely to occur.

Of specific medicines used for this infirmity, the author mentions two. With regard to hydrate of chloral he has no experience to offer. It has been stated, however, that cases have been cured by this medicine; and it is, therefore, worthy to be kept in mind.

We possess in the second medicine, belladonna, a most effectual remedy. Although a very potent drug, there is one strange feature about it, as regards children, and that is the little susceptibility they show to its action; and it may be considered as established that they tolerate it very much better than adults. By gradually increasing the dose, very large doses may often be given. The author's experience in the use of belladonna in this disease comprises two cases, in both of which the results of the treatment were very satisfactory.

Over-acidity of the urine and worms, mentioned by West and others as supposed causes of the complaint, have never come under the author's notice as such. Worms are a much more common complaint than incontinence of urine; yet he has never seen an instance where the two were combined; moreover, the urine has not been over-acid. Children are often sufferers from dysuria and frequency in passing water; but this is a very different affection from the infirmity in question.

In conclusion, the four points which seem to hold out the best prospects of curing this complaint are, —

1. The training the child to retain its water, in the day-time, as long as possible.

2. The use of the cold douche.

3. The moderate use of fluids towards night, and total abstinence from tea.

4. The internal use of belladonna, given in increasing doses till its specific effects are produced.

Dr. Darby knew several cases where the disease was hereditary. He had made use of the treatment recommended by Sir D. Corrigan in six cases, and it was perfectly successful. He had not seen many females with this affection, but he believed it continued in females to a much later period of life than with boys; and in those cases which were hard to cure, he believed blistering was the best mode of treatment. He remembered a case of whooping-cough where the parents consulted a Lady Bountiful, who had a panacea for the disease, consisting of carbonate of potash, cochineal, and large doses of tincture of cantharides. The cantharides was pressed till it produced strangury; and the result was that the child was cured of incontinence of urine as well as of the whooping-cough. Dr. C. F. Moore and Dr. Darby doubted the propriety of giving belladonna to children in the large doses mentioned by Dr. Kennedy.

Dr. Churchill thought this very obstinate disease in some cases was kept up by an acid condition of the urine, and he had seen such cases benefited by the administration of alkalies. He had seen the complaint ameliorated by belladonna, though not in such large doses as Dr. Kennedy recommends. He had also seen it benefited by cold douches at night. He believed the best treatment to be watchfulness, the child being carefully watched all night by an experienced nurse-tender. He found, by observation, that the incontinence recurred in several instances when the patient was in a deep sleep; but in the majority of cases it preceded waking. It is probable that some of these cases may arise from want of proper tone of the bladder; and such instances might be benefited by strychnine. He had seen several cases of incontinence of urine in girls. He knew one, now twenty years of age, in whom the trouble still continues.

Dr. Kidd thought if the children be made to abstain from fluids, their urine becomes more concentrated and more irritating; and thus the tendency to wet the bed is increased. There is another point that should not be overlooked, namely, that sometimes this incontinence of urine is a symptom of epilepsy. In many cases of epilepsy, when the fits only occur in the night, their occurrence is only known by the bed being wet. Another important matter, with regard to the treatment, concerns the kind of bed on which the patient lies. Of all devices, india-rubber sheeting is the worst. The best plan is to put the patient to sleep on a bed of good wheaten straw; the water trickles through it at once, and the patient is saved a great deal of discomfort. At the asylum in Sligo,

where there are many dirty patients in the habit of wetting their beds, they use a canvas bed — simply a stretcher made of some peculiar canvas manufactured specially; this is stretched over two wooden supports, and the patients lie thereon, with two blankets under them doubled and meeting at the hips, so that the upper one is without the range of the wet, and the lower one is easily removed. One other point should be noticed, and that is the frequent association of this condition with ascarides in the rectum. Some of these cases he had seen benefited by the injection of a solution of common salt, which removes the ascarides and allays the irritation. He thought the tincture of the muriate of iron deserved more credit than it got from Dr. Kennedy, as a remedy in the affection.

The vice-president (Dr. Atthill) said that as the causes of incontinence were numerous, the remedies must be numerous also. Dr. Churchill had alluded to punishment as a remedy sometimes adopted in these cases. Nothing could be more cruel or injurious than such a course. Very few patients wet their beds intentionally. As to the time at which the urine is voided, no doubt it sometimes occurs during the act of waking, and sometimes in the most profound sleep. He thought that ice applied to the spine might sometimes prove of use.

Dr. T. More Madden divided the cases into two classes, those which were preventable and those which could not be prevented. The former were the most numerous. In them it was not a disease, but the result of carelessness on the part of the nurses and of the children themselves, and could be cured by simple attention to cleanliness. He attributed the good effects of a blister over the sacrum to the fact that the patient was thus prevented from lying on his back. He disapproved of the mechanical treatment which had been suggested. He had found both tincture of perchloride of iron and tincture of belladonna useful, especially in combination. If they blistered the child's sacrum, put it on tincture of iron and belladonna, and gave no salt in its food, they would have very few cases of incontinence of urine.

Dr. Kennedy, in reply, said that he had seen none of the disagreeable consequences of belladonna alluded to by Drs. Moore and Darby. He was glad to hear that Dr. Darby had had such successful experience of the collodion process, and hoped he would publish the particulars of the six cases in which he had employed that method.

(*To be concluded.*)

PROCEEDINGS OF THE BOSTON SOCIETY FOR MEDICAL OBSERVATION.

W. L. RICHARDSON, M. D., SECRETARY.

Rachitic Cat. — Dr. Edes exhibited the skull, scapulæ, humeri, pelvis, and femora of a cat. A large tumor arose from the upper jaw on each side, apparently from the alveolar process posterior to the canine teeth, involving the molars. The angles of the lower jaw were enlarged, softened, and hollow. The skull was much thickened and softened, the vault of the cranium having at least three times its normal thickness, but could be indented with the finger-nail. The scapulæ were of four or five times their normal thickness, and of spongy consistency. The humeri, pelvis, and femora were in a similar condition, although not quite so striking in appearance as the shoulder-blades. The femora fractured easily just below the trochanters. The microscope showed only rarefaction of tissue without abnormal elements. The body was well-nourished and there was no disease of the internal organs.

The cat from which the specimens came had fed ravenously upon meat from an early age, and when first observed would not touch milk, although it afterward took a moderate quantity. It was noticed to be averse to jumping down, although it would climb quite well; it ran up-stairs, but came down carefully; it sometimes appeared in pain from being handled. It was put to death on account of the appearance of the tumors and the difficulty occasioned by them in eating. The precise period of their origin is not known.

The case is interesting in connection with experiments which have been made upon the production of rachitis by premature weaning, and other variations from a normal diet in growing animals. M. Guerin [1] is said to have rendered young dogs rachitic by substituting raw meat for their mother's milk. M. Tupier, however, from whose paper the above statement is borrowed, did not succeed with young cats; and he concludes that diet alone is unable to cause an abnormal progress of ossification.

The bones exhibited cannot be regarded as strictly rachitic, inasmuch as there is no trace of an over-formation of cartilage or bone; they are rather to be referred to a condition like the osteomalacia of the human race, which is, however, chiefly a disease of adult life.

Cancer of the Right Supra-Renal Capsule. — Dr. Fitz showed a specimen of cancer of the right supra-renal capsule from a patient of Dr. Shattuck. The organ was enlarged to the size of a peach, intimately adherent to the liver above and the kidney below. The cut surface was traversed by bands of dense fibrous tissue surrounding patches of red, yellow, and gray, in part softened, in part of tolerably firm consistence.

The adjoining portion of the liver contained a nodule of the size of a marble, apparently of more recent origin. The disease had extended into the tissues surrounding the pelvis of the kidney, had compressed the renal artery very decidedly, and had invaded the walls of the inferior cava, projecting slightly from its inner surface. The mucous membrane of the pelvis of the kidney and the upper inch of the ureter was likewise infiltrated to a moderate degree; the surface was ulcerated.

[1] Archives de Physiologie, January, 1874, page 108.

The right kidney was considerably diminished in size, dense, of a grayish-white color spotted with yellow, and contained relatively little blood. The capsule was thickened and quite adherent. On section, the cortical portion diminished in volume, relatively homogeneous, moderately translucent; that between the pyramids softer, yellow, opaque, and extensively fatty. The kidney was intimately adherent to the spine, the adjacent vertebræ being of considerably diminished density; the intervertebral disks were softened. There was no evidence of extension of the new growth into the vertebræ.

A microscopical examination showed that the tumor was composed of a fibrous stroma, often very dense, surrounding spaces varying considerably in size, which contained large cells of irregular shapes but all of an epithelial type, and not separated from each other by any perceptible intercellular substance. At the vesical orifice of the right ureter, a calculus of the size of a cherry stone was found. The ureter was still pervious and was not dilated beyond the situation of the calculus.

The patient from whom these specimens came was a female, aged forty-six years. She entered the hospital on the 29th of August, 1874, having been obliged to give up her work as cook some three weeks previous, though she had been ailing for a longer period. Pain and weakness were her chief symptoms, the former being referred to the epigastrium, back, and lower part of scapulæ. On taking a long breath, pain beneath the lower part of the sternum was complained of. Repeated examinations of the urine gave a specific gravity of about 1020°, and an acid reaction. There was no albumen; under the microscope pus and blood corpuscles were found, in moderate quantity.

During the last few weeks of her life, pains in the back and left side, extending around the chest, were particularly grievous. She died October 31, 1874, about two months after her admission to the hospital.

Papilloma of Bladder. — Dr. Bolles reported the case. "Miss G., an active little old woman of eighty-one years and about a hundred pounds' weight, first came to see me twenty months ago because she had been suffering from hæmaturia for six weeks or so. There was no pain, no loss of appetite, absolutely no symptoms but the loss of blood and consequent anæmia. The urine contained at that time from one sixth to one tenth part of bright red blood, intimately mixed with it at first but soon settling into a clotted layer. There were mingled in the blood some pus cells, or cells like them, and a few similar in appearance but of unusually large size. I did not, however, feel sure of their being different from the others; at least could not recognize them as being characteristic of anything else.

"From this time until about eight weeks ago she was not formally under my care, although from seeing her frequently I know that she was at no time very ill, that the bleeding continued in small quantity most of the time, and that at several times it was very severe for some consecutive days or weeks. Her strength and color, of course, indicated its presence or absence. She occasionally had a little diarrhœa during the past summer, and a little pain in the lower part of the bowels, both easily controlled. There was no swelling or marked tenderness of the bowels. Shortness of breath and palpitation were occasional troubles, as well as loss of appetite.

"Eight weeks ago she became so ill as to consult me again. She had then passed urine as red as blood for some time, and in addition was attacked with sharp diarrhœa and griping abdominal pains. The palpitation and dyspnœa were distressing at times. The pulse was not frequent, but quick, feeble, and irregular. There was a loud, variable, sometimes musical murmur with the heart's impulse, heard at the apex and also above the clavicle. She was given digitalis, tannic acid, and an occasional opiate. After a few days the diarrhœa nearly disappeared, but the hæmorrhage continued unabated, and she took her bed six weeks ago and never left it subsequently. The urine at this time contained about one sixth of its bulk of bright fresh blood, soon settling in a distinct, soft clot. Among the numerous blood corpuscles and white cells were a few epithelial cells, smaller than those of the bladder and with larger and more striking nuclei; still there were intermediate forms between them, and I did not see anything characteristic among them.

"From the long-continued hæmaturia, the absence of symptoms referring to the kindeys and uterus, the very moderate amount of pain, and the slow advance of the disease, I was convinced that it was villous cancer or papilloma of the bladder, and gave that diagnosis to the friends.

"The rest in bed did more than medicines toward stopping the hæmorrhage, and for a week or two it either ceased entirely or greatly diminished, and there seemed to be a chance of her getting about again. But the bleeding afterward returned and continued to the end. Her dyspnœa was very oppressive at times, and one of her principal sources of distress; but in addition there were several recurrences of the diarrhœa, with muco-purulent-looking but never bloody discharges, paroxysms of severe pain in the hypogastrium, and neuralgic pains occasionally all over the body, more especially in the knees and legs, causing her to writhe and groan with agony. There was during most of the time the tossing, restlessness and sighing, moaning, and dreadful thirst of excessive bleeding, with partial stupor occasionally, and at the last a disinclination to swallow anything and an apparent inability to do so. Her mind generally remained clear until it gradually failed by increasing exhaustion, from which she died. There was a gangrenous odor for about three days before death."

Autopsy. There was quite a thick layer of yellow fat in the thoracic and abdominal walls surprising in view of the apparent emaciation. All the viscera were anæmic excepting the liver. The heart was small, firm, contracted, with atheromatous changes in and above the aortic valves, and a dilated or unusually large vessel for two or three inches above them. The stomach and intestines were nearly empty, and in the rectum were a number of small, round, shallow ulcers. The kidneys were apparently somewhat granular. Upon the posterior wall of the bladder was a papilloma apparently surrounding the left ureter; the growth was nearly as large as a horse-chestnut; and upon the anterior wall of the bladder was another as large as a hazel-nut. These were both attached by narrow bases with no thickening of the vesical wall beneath them, and floated free in the urine. The larger piece was partially sphacelated. Vessels communicating with the tumor were greatly enlarged.

Microscopically the growth consists of thin foliaceous expansions of connective tissue and papillæ, containing loops of large and full vessels; the epithe-

lium is cylindrical and various, but in most places macerated away, leaving naked or almost naked loops of vessels.

Case of Circumscribed Analgesia. — Dr. J. J. Putnam demonstrated a case of circumscribed analgesia of the skin, coming on after an attack of typhoid fever. The patient was a boy, seventeen years of age, healthy and muscular. The fever had occurred two years before, and had lasted about four weeks. The insensibility of the skin had been noticed soon after, the precise interval not lying in the patient's memory. He had been induced to seek advice recently, mainly because suffering much from a sense of coldness of the left hand, arm, and side, when an examination disclosed the following condition: The skin of the left hand, arm, left half of neck and trunk, and part of left side of face, was almost, if not quite, insensible to pain, even that produced by using a wire brush connected with a powerful induction battery. The limits of the affected region were quite sharply defined, especially about the face and head, where they included the skin of the ear, the angle of the jaw, and part of the occiput; on the trunk the dividing line corresponded with the median line of the body, front and back, and below nearly with the lower border of the ribs; inclosing, in short, pretty accurately, the cutaneous distribution of the cervical and brachial plexuses, the intercostal and the posterior branches of the dorsal nerves. The muscles throughout this region were finely developed, and the grip of the left hand, as measured with the dynamometer, was quite equal to that of the right.

The sensibility to touch, though somewhat impaired, was much less so than that to pain. For example, a light touch with the finger or with a camel's-hair brush, upon the skin of the left hand, was not felt; but, especially towards the radial border of the hand, the impression made by drawing the finger or brush rapidly over the surface was recognized, although generally referred not to the skin but to the deeper parts of the hand. Also the prick of a pin was felt as the touch of a blunt instrument.

The sense of temperature was greatly diminished, so that when the hand was plunged into water as hot as could be borne by a healthy person, it was not recognized as hot at first, but only after some moments; further, the patient said that when the face was exposed to a cold wind it was not felt over the affected region.

Besides the fact that it had suffered a number of slight injuries unrecognized when inflicted, the skin of the hand showed evidence of certain nutritive changes of a hypertrophic character. The fingers looked broader than those of the other hand, and the wrinkles were somewhat deeper. In the palm of the hand, over the metacarpo-phalangeal articulation, were two or three thick, callous patches, which were absent from the other, the chiefly laboring hand, and which the patient said had been present for a very long time, often having fluid beneath them. There was, and had been, nothing unusual in the appearance or in the growth of the nails.

In speaking of the pathology, Dr. Putnam said that the lesion could hardly be one affecting the nerve filaments of the insensible region at their peripheral distribution, the district was so large, and exposed in its various parts to such different atmospheric conditions; the absence of motor disturbances in the

presence of the marked sensitive changes, among other reasons, excluded an injury to the mixed nerves in their course; that only the posterior roots of so many nerves should have been affected alone was incredible: the lesion must therefore be located somewhere in the spinal cord or brain, and in the sensitive tract alone. In the cases hitherto reported of hemianæsthesia from cerebral disease, an entire half of the body has almost always been affected, and the sense of touch with, or even to a greater degree than, that of pain. Furthermore they have been accompanied with other symptoms of cerebral origin, and not with nutritive changes in the skin. It was considered as conceivable that a small and defined lesion in the spinal cord might have severed the nervous tracts carrying the sensations of pain from the region affected to the brain; the more so since the experiments of Schiff, and pathological observations by Charcot and various others, in cases of posterior spinal sclerosis, give reason for thinking that the sensation of pain is conducted upward through the gray matter of the posterior cornua, while that of touch, and of the position of the muscles passes along the posterior columns.

Dr. Putnam also suggested that the sensations of touch might be conveyed partly by sensitive nerves of the muscles, which recent experiments have pretty conclusively shown to exist. In that case the impressions felt would be dimly transmitted to them through the overlying tissue, as Létiévant has shown to occur with neighboring cutaneous nerves, when a peripheral injury has destroyed any one supplying a certain region. In favor of this view was the fact, observed by the patient himself, that when a pin is thrust into the arm, it causes no pain until it has penetrated through the skin to the parts below, when slight pain is felt.

The slight nutritive changes in the skin of the hand might be due to changes in the gray matter at the roots of the corresponding nerves (brachial), but except for that the lesion might be supposed to lie exclusively in the upper cervical region.

Circumscribed anæsthesia, as well as various other special nervous lesions, has frequently been observed after typhoid, and the pathological changes, so far as they have been observed, have occurred generally in the spinal cord. As to the nature of the lesions observed, Westphal and others have found, in a number of cases, small spots of inflammation, or, at a later period, sclerosis, scattered throughout the cord.

THE PROPOSED SURVEY OF THE COMMONWEALTH.

The Legislature of Massachusetts having directed the Board of Education to inquire into the expediency of a new survey of the State, the subject was referred to a committee of the board, whose report is now before us. From this we learn that the last general survey of the State closed in 1840. The great advances made by science since that time place our own State far behind others in this matter. It is proposed to make a topographical, geological, and biological survey of Massachusetts. The advantages to be derived from such a survey in laying out railroads, in determining the sources from which an ad-

equate supply of water may be obtained for our factories and large centres of population, are sufficiently obvious; and what is especially important, such an undertaking will consider the interests of the whole people and not of any one locality, and will save the necessity of independent surveys. It is believed that a geological survey will develop mineral wealth which will alone repay the entire cost of the undertaking. This and the biological survey will prove of great value to the agriculturist in conveying information as to the nature of the soil in different parts of the State, what plants will thrive the best in different soils and how these soils may be most economically worked, how pests of insects may be avoided, and how worn-out lands may be used. In order that the expense may not be too severely felt, it is recommended that the undertaking be extended over a period of fifteen years.

A survey conducted upon this plan would prove of inestimable value, but its value would undoubtedly be greatly enhanced were the State Board of Health to coöperate with those in charge of the undertaking, and a sanitary survey be conducted at the same time. Indeed, many of the problems to be solved by such an enterprise would be so intimately connected with sanitary matters that their solution could hardly be satisfactorily accomplished without some consideration of the questions of hygiene involved; on the other hand, the Board of Health would have an opportunity which is rarely placed in the hands of health officers to investigate complex and difficult questions on a thoroughly scientific basis.

The work already done by the Board of Health has, it is true, covered some of the ground that would be thus gone over; but carried out on this comprehensive plan its practical value would be greatly increased, while at the same time it would undoubtedly add greatly to the interest and value of the general survey.

MEDICAL NOTES.

— We are requested to state, in answer to inquiry, that an essay on pathological anatomy as connected with clinical observation, embodying original researches, would be considered by the committee on the Warren Triennial Prize as coming within the limits prescribed, and as suitable for competition.

— The attention of gentlemen who desire to become members of the Massachusetts Medical Society is called to the advertisement of the Censors for the Suffolk District, in the present number.

— During the year 1873–74, 14,992 lbs. of chloral were imported into the United Kingdom of Great Britain and Ireland.

— The last number of *The Doctor* gives notice that it will publish the names of subscribers who neglect to pay their subscriptions.

— We are indebted to Dr. C. B. Porter for calling our attention to some anatomical errors which we overlooked in Dr. Seeligmüller's paper on "Infantile Paralysis acquired during Delivery," of which we gave an account in our number of January 28th.

We read in the last paragraph, page 110, "The abnormal rotation of the

upper arm depends upon paralysis of the infra-spinatus muscle, and therefore of the subscapular nerve that supplies it." The infra-spinatus is supplied by the supra-scapular nerve. Again, "The infra-spinatus alone rotates the arm outwards." The arm is rotated outwards by the infra-spinatus and teres minor, and the latter is supplied by the circumflex nerve.

SURGICAL OPERATIONS AT THE MASSACHUSETTS GENERAL HOSPITAL.

[SERVICE OF DRS. BIGELOW AND CABOT.]

OPERATIONS were performed under ether in the following cases during the week ending January 16: —

1. Deformity of face from lupus. 2. Anchylosis of elbow-joint. 3. Necrosis of tibia. 4. Extensive cellulitis of hand and fore-arm. 5. Necrosis of femur with abscess of knee-joint. 6. Necrosis of tibia. 7. Cyst of lip. 8. Fistula in ano. 9. Hare-lip, infantile. 10. Deformity of face. 11. Hare-lip in adult. 12. Compound comminuted fracture into elbow-joint. 13. Deformity of face from lupus. 14. Large splinter in foot. 15. Wens of back and scalp. 16. Four abscesses.

4. *Cellulitis and Necrosis following a slight Punctured Wound; Amputation.* — A young man tried to pull down the upper sash of a window five weeks ago; his left hand slipped and struck against a needle sticking in the lower sash. The needle entered the palm of the hand near the wrist and was extracted by the patient. About a week after, the hand began to swell, and at last became infiltrated with pus. On entering the hospital, a tourniquet was applied to the brachial artery, and the sinuses which had riddled the hand and entered the wrist-joint were laid open freely. All the carpal and a portion of the metacarpal bones were found necrosed; they were all removed and counter-openings made to facilitate the drainage of pus, which had burrowed in every direction. During the six following days, the hand and wrist became so disorganized from extension of the inflammatory processes, that any further attempt to save the limb obviously involved too great a risk of life. Amputation was performed at the lower third of the fore-arm by Dr. Bigelow.

5. *Necrosis of the Femur; Amputation of the Thigh.* — A boy of sixteen had a small necrosis of the lower part of the shaft of the femur, with an opening above the ham; the sinus had been dilated and the escape of pus was free. Some weeks after, the knee began to swell; and in the course of ten days it became evident that an abscess was forming over the internal condyle, which, owing to the patient's prostration, it was feared might have communicated with the joint. This proved to be the case; the finger readily passed into the joint when the abscess was evacuated. The limb was therefore amputated just above the sequestrum, at the junction of its middle and lower thirds. Examination showed that the pus near the ham had entered the joint through a small sinus at its posterior surface, in spite of the free opening which had been made near the necrosed bone to give it exit. As usual in this hospital for the last

twenty years, when it has been thought important to save blood, a dry operation was insured by a bandage tightly applied to the limb and removed after the tourniquet had been tightened.

9 and 11. *Cases of Hare-Lip.* — Dr. Bigelow remarked that the surest and best way of avoiding a notch in the lip is to excise completely its lateral halves, and that an attempt to turn down or otherwise to utilize the detached portions is apt to result in an irregularity of the lines of mucous membrane, noticeable through life.

12. *Compound, Comminuted Fracture into Elbow-Joint.* — The patient was a young adult, and the lesion was due to a railroad injury. The soft parts were extensively lacerated, the elbow-joint torn open, and the bones comminuted at a considerable distance from the joint. Dr. Cabot believing that it was better in any case to amputate if possible even just below the head of the bone than to excise the latter, thus opening the sheaths of the muscles inserted into it, amputated the arm at about an inch and a half below the shoulder-joint.

13. *Rhinoplasty.* — A colored woman, twenty-seven years of age, had completely lost her nose by scrofulous lupus, now healed. Dr. Bigelow made a new nose from the forehead, in the usual way. The plastic power of this patient had been previously tested by an experimental operation on the upper lip; and although the result did not promise as well as was hoped, the new nose seems to have perfectly united five days after the operation.

H. H. A. Beach, M. D., Surgeon to Out Patients.

SURGICAL OPERATIONS AT THE BOSTON CITY HOSPITAL.

[service of drs. cheever, thorndike, and wadsworth.]

The principal operations performed during the week ending Friday, January 22, 1875, were the following: —

1. Amputation of thigh. 2. Amputation at the ankle-joint. 3. Amputation of thigh. 4. Perineal section. 5. Cellulitis of foot. 6. Divulsion of stricture by Holt's dilator. 7. Fistula in ano. 8. Abscess of thigh. 9. Cancer of scrotum. 10. Caries of hard palate. 11. Amputation of fingers. 12. Necrosis of tibia. 13. Tonsillotomy. 14. Removal of calcareous deposit from cornea.

1. *Amputation of Thigh for a simple Dislocation of the Knee backwards, with Rupture of the Popliteal Artery, and large Traumatic Aneurism.* — About two hours before being brought to the hospital, a middle-aged man was kicked on the right leg by a mule. The skin was not broken, and there were only two or three slight abrasions over the anterior surface of the tibia. There was a large swelling in the right popliteal space, extending down to the calf of the leg. The measurements around the knee and calf were respectively three and two inches larger than those of the corresponding parts of the left leg. The skin over this tumor was full, tense, and livid. No pulsation could be felt in either the anterior or posterior tibial arteries, and the limb was colder than its fellow. The ligaments about the knee-joint were so extensively lacerated that the head of the tibia very readily fell back into the popliteal space. The patient

was in fair condition, although he was said to have been partially intoxicated at the time of the accident.

The enormous effusion which had taken place in the short space of two hours, together with the ecchymoses, and the sacculated, fluctuating feeling of the ham, rendered it evident that a large extravasation of blood must be present. Whether this had come from the rupture of the popliteal vein or artery, Dr. Cheever felt unable to determine, since the absence of pulse in the tibial vessels might be due either to the pressure under the fascia of a large effusion from the vein, or to a break in the main artery itself. The thinner wall of the great vein would seem to render that vessel more likely to be torn than the artery.

Traumatic aneurism of such magnitude requiring immediate interference to check the bleeding, the patient was etherized, and a three inch vertical cut made over the centre of the ham. A rush of blood and clots immediately followed, and on sweeping this out with the hand, the whole popliteal space was found lacerated, with the outer head of the gastrocnemius torn away, the entire expansion of the semi-membranosus fascia, which lines the back of the articulation, ruptured, and the knee-joint gaping open. It being evident that death would result from delay, Dr. Cheever immediately amputated the thigh at the middle third by the circular method. The arteries were tied and the wound closed with sutures. An examination of the amputated leg showed the following lesions: The popliteal artery was torn completely across, opposite the head of the tibia, and the ends had retracted two inches. The vein and nerve were uninjured. The crucial ligaments were separated from the tibia. The posterior ligaments were completely divided, and the lateral partially. The semi-lunar cartilages were dislocated, and a small piece of bone was chipped from the head of the tibia. The outer head of the gastrocnemius was torn from the femur. All the tissues in the ham, down to the calf, were severely bruised and lacerated, and infiltrated with blood.

Since the amputation, on the 17th inst., the patient has gone on well.

2. *Amputation at the Ankle-Joint.* — Five weeks ago the patient, a young man, walked eight or nine miles in wet boots. Both feet were frozen, the right one only slightly. The left became gangrenous up to the tarso-metatarsal articulation. There was left available neither skin nor flesh to make a covering for any amputation short of the ankle-joint. The choice then lying between Syme's, Pirogoff's, and other forms of tibio-tarsal disarticulation, Dr. Cheever performed "Soupart's" amputation, in the following manner: The circulation having been controlled with a piece of rubber tubing, an incision was made from a point just behind the scaphoid tubercle, downward to the middle of the sole of the foot, thence backward over the centre of the heel to a point an inch and a half above the insertion of the tendo Achillis, thence outward below the external malleolus, and forward, to meet the original incision. The ankle-joint was opened on the external lateral surface, the foot strongly pried inward, and carefully dissected from the long internal flap. The knife was made to hug the os calcis to avoid the posterior tibial artery. A thin slice of bone, including both malleoli and the articular surface of the tibia and fibula, was removed. The arteries were twisted, and the wound was closed with wire

sutures. The flap was amply sufficient to cover the end of the bones, without any strain whatever.

3. *Amputation of the Thigh.* — A shoemaker, thirty years of age, while drunk, fell off a train of cars, two wheels passing over the right leg. When brought to the hospital, a few hours after the accident, he was suffering moderately from the shock. Pulse 100, skin cold, no hæmorrhage. The leg was broken in several places up to the middle of the thigh, and the soft parts were literally crushed, with the exception of a strip of skin on the inner side of the thigh, about eight inches long by five inches wide, and lying just below the groin. Dr. Cheever amputated the thigh through the trochanters, covering the stump with the above-mentioned piece of skin. The hæmorrhage was controlled with rubber tubing, passed first around the pelvis, and then around the thigh, in the form of a spica-bandage. Scarcely any blood was lost during the operation; but in spite of free stimulation, the patient sank and died in about ten hours.

4. *Perineal Section.* — A young man had gonorrhœa three years ago, followed in six months by a perineal abscess, and fistula. For several months, a large part of the urine has been discharged from the sinus, although the stricture, which is in the membranous urethra, admits a No. 9 sound. The orifice of the fistula is an inch and a half in front of the anus, and an inch to the left of the median line. Dr. Thorndike opened the urethra upon a staff at the internal orifice of the fistula, and divided the stricture. The inner wall of the sinus was next divided, the indurated tissue removed, and the fistulous tract touched with nitric acid.

Both fistulæ operated on by Dr. Thorndike several weeks ago are entirely well. One was perineal, following lithotomy, treated as above. The other was recto-vesical, treated by a plastic operation and the galvano-cautery.

9. *Cancer of Scrotum* — The patient is a laborer, thirty-four years old. A year ago a small wart made its appearance on the anterior part of the scrotum, to the right of the raphé. It grew until at the time of the operation it had become a large fungous mass, three inches in diameter, extending on to the penis. There was no pain, no glandular complication, and no attachment to the deep structures. Dr. Thorndike removed the growth by a free dissection. The wound was easily closed, owing to the redundancy of the skin of the parts.

GEO. W. GAY, M. D.

WEEKLY BULLETIN OF PREVALENT DISEASES.

THE following is a bulletin of the diseases prevalent in Massachusetts during the week ending January 30, 1875, compiled under the authority of the State Board of Health from the returns of physicians representing all sections of the State: —

In Berkshire: influenza, bronchitis, pneumonia, rheumatism, and whooping-cough.

In the Connecticut Valley: bronchitis, influenza, pneumonia, rheumatism, whooping-cough, and diphtheria. The latter disease prevails in the northern part of this section. Measles, though not generally prevalent, is increasing.

In the Midland section: bronchitis, pneumonia, influenza, measles, scarlatina (generally mild), and croup. Small-pox in the Blackstone Valley. Influenza is reported as exceedingly rife in some sections. Measles is increasing.

In Middlesex and Essex: influenza, pneumonia, bronchitis, scarlatina, rheumatism, whooping-cough, and measles. In the northern parts of this section scarlatina prevails extensively. A case of cerebro-spinal meningitis in Wakefield is reported.

In Boston and its suburbs: bronchitis, measles, influenza, pneumonia, rheumatism, scarlatina. Nearly all these diseases are increasing in prevalence. Croup and diphtheria are also spreading.

On the Cape and among the islands: bronchitis, influenza, pneumonia, and rheumatism. Scarlatina and whooping-cough are disappearing.

We have to note this week the very general prevalence of influenza, — in many sections, of a severe type. Measles is extending westward. Scarlatina is subsiding in the southern parts and is becoming more rife in the northern sections.

If we compare the present with the last week, we find an increase in the prevalence of croup, measles, influenza, and pneumonia; diphtheria, rheumatism, and scarlatina are as at last report; tonsillitis and whooping-cough are less prevalent. The scarcity of water is commented on by many reporters.

F. W. Draper, M. D., Registrar.

COMPARATIVE MORTALITY-RATES FOR THE WEEK ENDING JANUARY 23, 1875.

	Estimated Population.	Total Mortality for the Week.	Annual Death-rate per 1000 during Week.
Philadelphia	775,000	355	24
Brooklyn	450,000	260	30
Boston	350,000	164	24
Providence	100,000	41	21
Worcester	50,000	19	20
Lowell	50,000	21	22
Cambridge	44,000	26	31
Fall River	34,200	17	26
Lawrence	33,000	19	30
Springfield	33,000	5	8
Lynn	28,000	11	20
Salem	26,000	10	20

Married. — In Ayer's Village, Haverhill, Mass., January 26, 1875, at the residence of the bride's father, by Rev. E. W. Allen, Thomas S. McAllister, M. D., of Amesbury, Mass., to Ellen M., only daughter of Monroe Ayer, Esq.